

REMARKS

Applicant respectfully requests reconsideration of this application, as amended herein. Claims 1-26 were pending in the application. In this amendment, Claims 1-26 have been cancelled and new Claims 27-52 have been added. Therefore, Claims 27-52 are pending in the application. The new claims are submitted to clarify the features of Applicant's invention, which features are fully supported throughout the specification, such that no new matter has been introduced.

The Objections

The Examiner has objected to informalities in Claim 11 and Claims 12-14 that depend therefrom. As Applicant has canceled Claims 11-14, it is believed the objection is now moot with respect to those claims. The newly added claims do not contain the same informality.

The Rejections under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 1-26 under 35 U.S.C. 103(a) as being unpatentable over Christenson et al., U.S. Patent No. 6,324,620. Applicant respectfully traverses the rejections.

In this amendment, Applicant has replaced Claims 1-26 with new Claims 27-52. Applicant will distinguish the cited reference on the basis of the new claims.

The Christenson et al. patent relates to a direct access storage device (DASD) data management and partitioning system based on frequency utilization and capacity. Christenson et al. propose to manage data on a plurality of so-called DASD units, i.e. mass storage devices like floppy disk drives or hard disks, and to monitor portions of data on a plurality of DASD units to determine the number of times data is accessed within any given time period. This allows the data partition of the DASD units to be characterized as hot or cold data. Note, Christenson et al. determine the average access frequency for all data on a plurality of DASD units and then characterize the data with above average access frequency as hot and data with below average access frequency as cold for each DASD unit. Data are moved between the DASD units based upon its access frequency characterization and the utilization factors of those DASD units. Data characterized as hot is moved to a DASD unit with a low utilization factor and cold data is moved to a DASD unit with the most available capacity (col. 3, lines 2-8). This is for data that is shuffled between different DASD units. In so far as data that is shuffled within a single DASD

unit, Christenson et al. propose to provide the DASD unit with a hot partition and a cold partition. The manner of data partitioning is further described in column 6, line 46 to column 7, line 10.

It is important to understand that Christenson et al. describe the structuring of data as related to “portions of data” (col. 2, line 52) with only two characterization levels; that is, there are two halves to the data, one portion of data having an access frequency above the average and one portion of data having an access frequency below the average. The present invention differs over this prior art reference in that, there is not only provided a single differentiation between hot and cold, but that, according to the present invention, it is possible to achieve many levels of characterization based on many different access frequencies.

Additionally, the present invention does not deal with “portions of data” in a plurality of discrete DASD units. Instead, the present invention provides a solution for a single unit by allocating data regions in the secondary memory as claimed. The data region is further subdivided in data storage sections, each data storage section having at least two levels of hierarchies for a data representation within a single memory facility.

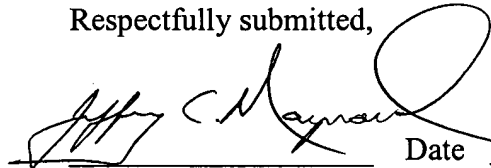
Still further, another important difference in the present invention is that there is not only provided a single differentiation between hot and cold for a “portion of data”, but that, according to the present invention, it is possible to achieve a further detailed consideration for data down to the level of specific data objects. See paragraph [0024] of the published application. Therefore, the present invention avoids the problem of complete page storage in a page cache memory section enabling significant improvement of memory management, which aspect is not taught or suggested by Christenson et al.

Accordingly, the present invention enables more discrete determination of access frequencies for a wider variety of data, thereby enabling more efficient usage of memory space and a reduction of the access time to move frequently used data objects. As Christenson et al. neither teach nor suggest such a system as claimed, Christenson et al. are patentably distinguished.

CONCLUSION

Applicant has made a diligent effort to address the objections and rejections identified by the Examiner and believe all claims remaining in the application are allowable. Accordingly, a Notice of Allowability is respectfully requested. However, if the Examiner is of the opinion that the present application is not in condition for allowance, Applicant respectfully requests that the Examiner contact Applicant's attorney at the telephone number listed below so that additional changes may be discussed.

Respectfully submitted,

 8/10/04
Date

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